

Claims

- [c1] A method for providing an optimal subresolution assist feature (SRAF) configuration for a layout including at least one main feature, comprising:
- providing a plurality of SRAF configurations for the layout;
 - ranking the SRAF configurations based on a figure of merit;
 - applying a highest ranked SRAF configuration to the layout;
 - applying a predetermined number of lower ranked SRAF configurations to the layout; and
 - selecting SRAF features from at least one of the applied SRAF configurations to provide an optimal SRAF configuration for the layout.
- [c2] The method of claim 1, wherein the optimal SRAF configuration optimizes lithographic performance while avoiding manufacturability problems.
- [c3] The method of claim 1, wherein the figure of merit is selected from the group consisting of process window area, mask error factor, depth of focus, percent coverage, and combinations thereof.

- [c4] The method of claim 1, wherein the figure of merit comprises process window (PW) area, wherein the highest ranked SRAF configuration has a PW equal to PWmax, and wherein the predetermined number of lower ranked SRAF configurations have a PW greater than or equal to a predetermined percentage of PWmax.
- [c5] The method of claim 1, further comprising:
discarding any SRAF features that are not selected.
- [c6] The method of claim 1, further comprising:
dividing the main features according to spacing into at least one space; and
successively applying the method to each space.
- [c7] A computer readable program product stored on a computer usable medium, comprising program means for performing the method according to claim 1.
- [c8] A method for providing an optimal subresolution assist feature (SRAF) configuration for a layout including at least one main feature, comprising:
providing a plurality of SRAF configurations for the layout;
ranking the SRAF configurations based on a figure of merit;
applying a highest ranked SRAF configuration to a space

in the layout;

applying a predetermined number of lower ranked SRAF configurations to the space in the layout; and

selecting SRAF features from at least one of the applied SRAF configurations to provide an optimal SRAF configuration for the space in the layout.

[c9] The method of claim 8, further comprising:
repeating the applying and selecting steps for each additional space in the layout.

[c10] The method of claim 9, wherein, after applying the highest ranked SRAF configuration to a space in the layout:
evaluating a fit of the highest ranked SRAF configuration;
if the fit of the highest ranked SRAF configuration is acceptable, applying the highest ranked SRAF configuration to another space in the layout;
if the fit of the highest ranked SRAF configuration is not acceptable, applying a lower ranked SRAF configuration to the space in the layout.

[c11] The method of claim 10, wherein:
evaluating a fit of the lower ranked SRAF configuration;
if the fit of the lower ranked SRAF configuration is acceptable, applying the highest ranked SRAF configuration to another space in the layout;
if the fit of the lower ranked SRAF configuration is not

acceptable, applying another lower ranked SRAF configuration to the space in the layout.

- [c12] The method of claim 8, wherein the optimal SRAF configuration optimizes lithographic performance while avoiding manufacturability problems.
- [c13] The method of claim 8, wherein the figure of merit is selected from the group consisting of process window area, mask error factor, depth of focus, percent coverage, and combinations thereof.
- [c14] The method of claim 8, wherein the figure of merit comprises process window (PW) area, wherein the highest ranked SRAF configuration has a PW equal to PWmax, and wherein the predetermined number of lower ranked SRAF configurations have a PW greater than or equal to a predetermined percentage of PWmax.
- [c15] The method of claim 8, further comprising:
discarding any SRAF features that are not selected.
- [c16] A computer readable program product stored on a computer usable medium, comprising program means for performing the method according to claim 8.
- [c17] A method for providing an optimal subresolution assist feature (SRAF) configuration for a layout, comprising:

dividing the layout into spaces; and
applying SRAF rules to a space in the layout, wherein the
SRAF rules take into account SRAF features in adjacent
spaces of the layout.

[c18] The method of claim 17, wherein the adjacent spaces
comprise a prior space and a following space.

[c19] A computer readable program product stored on a com-
puter usable medium, comprising program means for
performing the method according to claim 17.